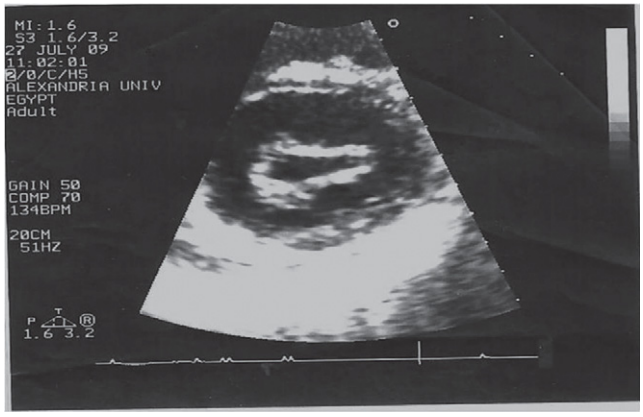

commissural morphology

Conclusion: We concluded that commissural opening degree and mitral valve area are closely related. The degree of commissural opening provides important prognostic information, and complete commissural opening is associated with better late functional results. Thus, degree of commissural opening should be systematically evaluated during and after balloon mitral comissurotomy and can be considered as a complementary measure of the procedural success in addition to the mitral valve area.

TCT-802

MitraClip Treatment of Functional Mitral Regurgitation in Patients not Amenable to Surgery

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Background: Transcatheter implantation of the MitraClip (MC; Abbott, Abbott Park, IL) has evolved as a viable option to treat moderate/severe mitral regurgitation (MR). The recent EVEREST II trial suggested that elderly patients (pts) with functional MR and impaired LV function may particularly benefit from this therapeutic approach.
Methods: We studied 69 consecutive pts with functional MR (73 ± 8 years; 46 men [67%]) who were attested a prohibitive surgical risk (median EuroSCORE 33%) by joint ("heart team") consensus of cardiovascular surgeons and cardiologists. Baseline MR grade was 3+ (n=37) or 4+ (n=32) and mean LVEF was 37 ± 13%; all pts were in NYHA functional class III or IV. Exclusion criteria of EVEREST trials were met in 56 pts (81%). All pts underwent MC therapy as previously described.
Results: Device success (residual MR ≤2+) was achieved in 66 pts (96%), with ≥2 clips implanted in 21 pts (30%). At discharge, 39 pts had MR 2+ and 27 had MR 1+. Clinical and echocardiographic follow-up (FU) at 373 days (median) was obtained from 57 and 44 pts, respectively. Functional improvement was noted in 43/57 pts (75%), with 37/57 pts (64%) in NYHA class I or II. Six-minute walk distance improved in 27/39 pts (69%) by 105 m – a 50% increase – and the Minnesota quality-of-life score improved by -18 points – a 43% decrease – in 25/37 pts (68%). At FU, MR grade was improved over baseline in 89% of pts (39/44); 80% of pts (35/44) had MR 1+ or 2+. LV end-diastolic and end-systolic volumes decreased significantly (median 210 vs. 239 ml [p<0.0001] and 127 vs. 136 ml [p=0.0012], respectively), whereas forward stroke volume increased (median 49 vs. 42 ml [p=0.0005]). Kaplan-Meier 1-year estimates of survival free from rehospitalization for cardiac decompensation and survival free from death, rehospitalization or reintervention were 64.5% and 48.8%, respectively.
Conclusion: MC therapy is feasible and efficacious in elderly pts with functional MR not amenable to surgery who mostly would have been excluded from EVEREST. Thus, MC implantation evolves as a novel treatment strategy in heart failure patients with concomitant MR.

TCT-803

Changes in Platelet, Coagulation, Fibrinolytic Activities in Mitral Stenosis After Percutaneous Mitral Valvotomy. Role of Hemodymamic Changes and Systemic Inflammation

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Background: Few reports demonstrated that increased inflammatory markers as well as platelet, coagulation, fibrinolytic activities in mitral stenosis (MS) decrease after percutaneous mitral valvotomy (PMV). The relationship between the inflammatory markers and platelet, coagulation, and fibrinolytic activities was not studied before.
Methods: The study included 65 patients with MS undergoing PMV, and 23 controls. Markers of platelet activity (P-Selectin), thrombin activity (Prothrombin fragment1,2 "PF1,2" and thrombin antithrombin complex "TAT"), fibrinolysis (D-Dimer), and inflammation (interleukin 1B "IL1B") were measured from venous samples obtained before and 2 weeks after PMV and in all controls.
Results: All hemostatic and inflammatory markers were significantly higher in MS patients than the control and they significantly decreased after PMV. Only in PF1,2 the level became not significantly different from the control after PMV. The change in any of these variables didn't correlate with the change in mitral valve area, mean transmitral pressure gradient, left ventriculat dimensions and function. P-selectin change was predicted by the changes in left atrial diameter "LAd" (r 0.4, P 0.02), pulmonary artery systolic pressure "PASP" (r 0.3, P 0.02) and IL1B (r 0.7, P <0.0001). D-dimer change had similar predictors; LAd (r 0.5, P <0.0001), PASP (r 0.3, p 0.04), and IL1B (r 0.5, P <0.0001). PF1,2 change was predicted with the change in IL1B (r 0.8, P <0.0001). TAT change was predicted by the changes in LAd (0.3, P 0.02) and right ventricular diameter "RVd" (r 0.3, P 0.04). IL1B change was predicted with the changes in aortic root diameter (0.4, p 0.02), RVd (r 0.5, P 0.04), and PASP (r 0.5, P 0.03).
Conclusion: MS is associated with heightened inflammatory, platelet, thrombin, and fibrinolytic activities that decrease after PMV. Altered hemodynamics might play a possible role in some of these changes. Reduced inflammatory activity might have a role in reduced platelet, thrombin, and fibrinolytic activities after PMV.

TCT-804

Effectiveness of Percutaneous Reduction of Significant Mitral Regurgitation of Functional Etiology in High Surgical Risk Patients

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Background: Treatment of high surgical risk patients with significant functional mitral regurgitation (FMR) is an important clinical challenge, as surgical correction of MR may not always be a feasible option. The purpose of this analysis is to describe the clinical benefit, including improvements in LV function and clinical symptoms, observed following treatment with the MitraClip device in high surgical risk patients with FMR.
Methods: EVEREST II High Surgical Risk Trial patients had significant MR (3+ or 4+) and were deemed high risk for surgery as predicted by a STS risk calculator operative mortality of ≥ 12%, or surgeon assessment. Clinical outcomes included NYHA Class, quality of life (QOL) measures, and echocardiographic measurements by an independent core lab.
Results: 149 high surgical risk FMR patients underwent a MitraClip procedure with a 96% implant rate. A majority had prior cardiac surgery (63%), prior MI (57%) and mean predicted surgical mortality by STS calculator of 11.3 ± 7.0%. Mortality at 30 days and 1 year was 5.4% and 23.9%, respectively. Of remaining patients with data at baseline and 1 year, 101 had NYHA Class and 89 had matched echocardiograms, of which 80% (71/89) achieved MR severity of 2+ or less. Significant improvements in LV volumes, NYHA Class, and QOL (Table) were observed at 1 year.

	LVEDV (ml) (n=85)	LVESV (ml) (n=85)	NYHA Class I/II (%) (n=101)	Quality of Life PCS Score (n=81)	Quality of Life MCS Score (n=81)
Baseline	176 ± 50	100 ± 40	12.9	33 ± 9	42 ± 14
1 year	151 ± 49	88 ± 41	78.2	37 ± 11	49 ± 13
Absolute change from baseline	-24.8 ± 34.5	-12.2 ± 27.0	65.3	4.1 ± 11.8	6.6 ± 12.0
p-value	< 0.0001	< 0.0001	< 0.0001	0.0027	< 0.0001

PCS = Physical Component Summary, MCS = Mental Component Summary

Conclusion: The MitraClip procedure resulted in significant improvements in MR severity, ventricular remodeling, and clinical outcomes and is an important therapeutic option for select patients with significant functional MR who are at high risk for surgical mortality.

TCT-805

Tissue-Doppler Assessment of The Changes in Longitudinal Left and Right Ventricular Functions After Percutaneous Mitral Valvotomy

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Background: The effect of Percutaneous Mitral Valvotomy (PMV) on longitudinal left and right ventricular systolic and diastolic functions assessed by pulsed-wave tissue-Doppler imaging (PW-TDI) was not studied well before.
Methods: The study included 52 patients with mitral stenosis (age 26±8 years, 16 "32%" males, score 6.8±1.2, mitral valve area ≤1.5cm2, mitral regurgitation ≤ II/IV). Longitudinal right and left ventricular functions were assessed before and 2 weeks after PMV by PW-TDI. PW-TDI measurments of the septal, anterior, lateral and inferior mitral annulus were taken as measurments of the longitudinal left ventricular functions. Also, PW-TDI measurments at the lateral tricuspid annulus were taken as measurments of the longitudinal right ventricular functions.

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